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The Common Ant Cricket *Myrmecophilus acervorum* (Panzer, [1799]), new to the fauna of Georgia, southern Caucasus ecoregion (Orthoptera: Myrmecophilidae), with additional data on *Myrmecophilus hirticaudus* Fischer von Waldheim, 1846

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Abstract

The first record of the ant cricket *Myrmecophilus acervorum* in Georgia is presented. The species was discovered for the first time in Georgia in the Tbilisi region in 2021. Additional data on the distribution of *M. hirticaudus* in Georgia is presented.

Key words

Biogeography, Ecology, Faunistics, Myrmecophiles, South Caucasus

Introduction

Ant crickets of the genus *Myrmecophilus* Berthold, 1827, are tiny, myrmecophilous crickets. They live in ant nests, mostly as kleptoparasites (Schimmer 1909; Wetterer and Hugel 2008). The genus has an almost cosmopolitan distribution. To date, there are 10 known species in Europe and 63 species worldwide (Cigliano et al. 2022; Hsu et al. 2020). In the Caucasus region, one species, *M. hirticaudus* Fischer von Waldheim, 1846, has been reported from Armenia (Stalling 2013), Russia (Gorochoy 1984), and, most recently, Georgia on the southern steep slopes of the Kura River valley (Stalling et al. 2019). The other species, *M. acervorum* (Panzer, [1799]), has so far been reported only from Armenia (Stalling 2013). In the present communication, we provide data on a new country record for *M. acervorum* and additional distribution data for *M. hirticaudus* for Georgia.

Materials and methods

Ant nests were checked for the presence of *Myrmecophilus* species in Georgia in 2021. The ant nests were found by turning stones and logs. All *Myrmecophilus* specimens, when spotted, were caught and preserved in 96% ethanol. Fieldwork was carried out by the entomological team of Ilia State University, Institute of Ecology (ISU IE) within the framework of the Caucasus Barcode of Life Project (CaBOL). Photos of live and preserved specimens were acquired using a Canon EOS 550D camera with a Canon EF 100 mm f/2.8 Macro USM lens and a Raynox DCR-250 Super Macro Snap-On Lens mounted on it. Digital images were prepared using ZERENE STACKER image stacking software and ADOBE PHOTOSHOP CS6.

Voucher materials are kept at the CaBOL collection repository at Ilia State University.

Results

Family Myrmecophilidae Saussure, 1874

Genus *Myrmecophilus* Berthold, 1827

M. acervorum (Fig. 1A)

- GEORGIA • 1 adult F; Tbilisi, Didgori; N41.788550°, E 44.676617°; 835 m a.s.l.; 21 Sep. 2021; leg: N. Bulbulashvili, A. Seropian; under a rotting log in leaf litter in a deciduous forest dominated by *Carpinus orientalis* with no ant traces nearby; CaBOL-1016877.

M. hirticaudus (Fig. 1B)

- GEORGIA • 1 adult M; Tbilisi, Didgori; N41.803717°, E44.679300°; 945 m a.s.l.; 7 Mar. 2021; leg: L-G Japaridze; ident: A. Seropian; in a nest of *Lasius* sp. under a stone; CaBOL-1009791. 1 adult F; Shida Kartli, Gori; N41.970183°, E44.083517°; 932 m a.s.l.; 10 Mar. 2021; leg: N. Bulbulashvil; in a nest of *Lasius* sp. under a log at the edge of a deciduous forest; CaBOL-1011747. 1 adult M, 1 adult

F; Tbilisi, Telovani; N41.811200°, E44.691133°; 995 m a.s.l.; 15 Aug. 2021; leg: N. Bulbulashvili; under a rock in a deciduous forest; CaBOL-1012510, CaBOL-1012511. 1 juvenile; Kvemo Kartli, Kumisi; N 41.601967°, E44.811750°; 502 m a.s.l.; leg: Sh. Japarashvili; under a rock on the bank of the Nagu-bi River; CaBOL-1013030. 1 adult F; Samtskhe-Javakheti, Ijareti; N41.632700°, E 42.689300°; 1752 m a.s.l.; 09 Oct. 2021; leg: E. Arsenashvili; under a rock on the bank of Lake Trialala, CaBOL-1020408. 1 ind; Mtskheta-Mtianeti, Armazi gorge; N41.832017°, E 44.684183°; 742 m a.s.l.; 11 Mar. 2017; personal observation by A. Seropian; in a nest of *Reticulitermes lucifugus* (Rossi, 1792), on the rocky slopes of the Armazi gorge.

Discussion

The discovery of *Myrmecophilus acervorum* represents the first record of this species in Georgia. The criteria used for identification were those described by Stalling and Birrer

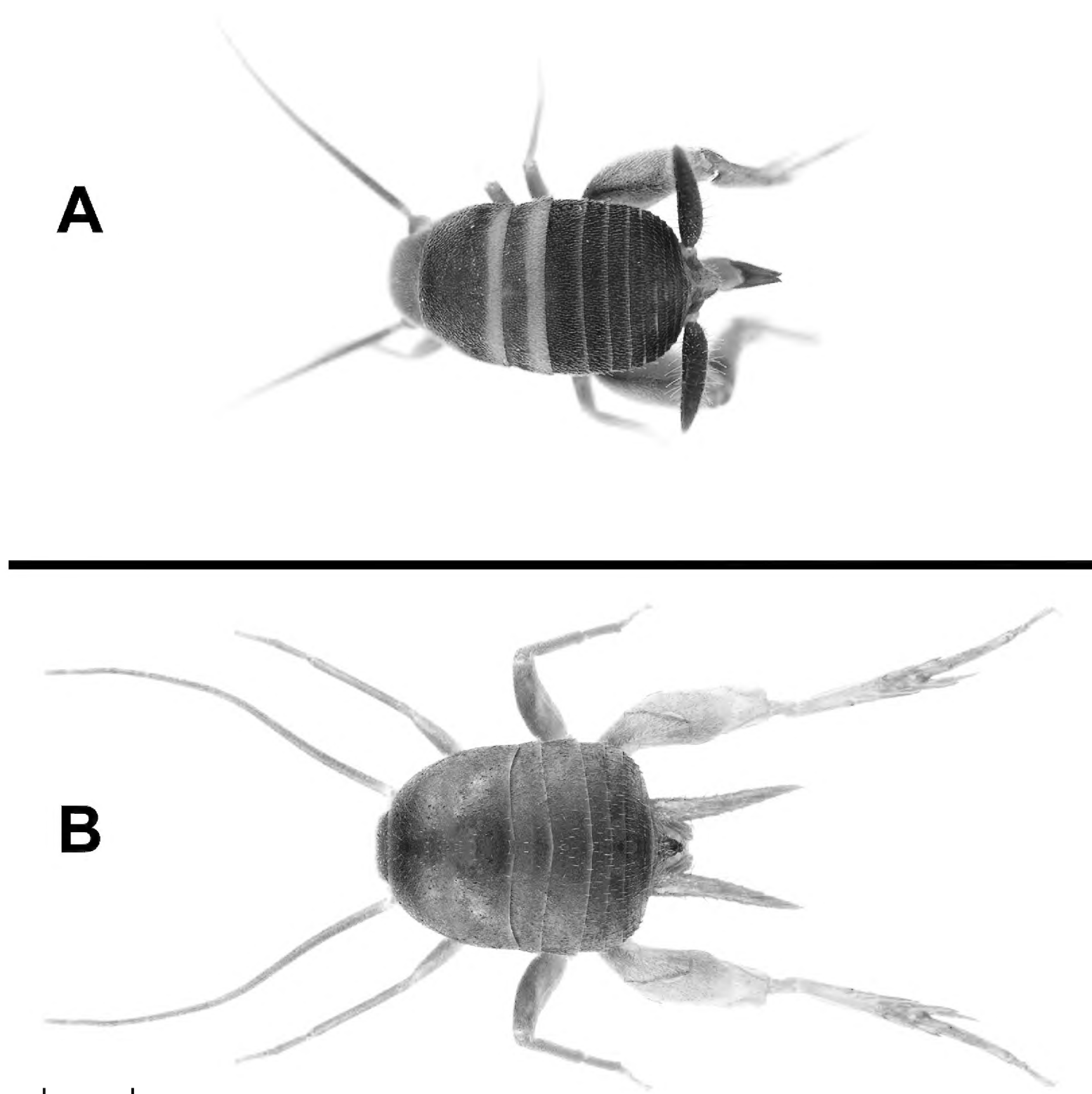


Figure 1. *Myrmecophilus* species collected in Georgia. **A:** *M. acervorum*, live female specimen, Didgori, Georgia, 21 Sep. 2021; **B:** *M. hirticaudus*, male, Didgori, Georgia, 07 Mar. 2021 (the scale bar: 1mm). Photo credits: A. Seropian.

(2013). Adults and older nymph stages of *M. acervorum* are distinguished from *M. hirticaudus* by the following criteria: dark reddish-brown with a pale ochreous posterior border on the pronotum and mesonotum, in contrast to the uniform brown body colour of *M. hirticaudus*, and two dorsal spines in the proximal and medial positions, in contrast to three dorsal spines positioned in the proximal, medial and distal parts of the metatarsus (the spine is occasionally absent in the medial position, but the spine in the proximal position is always present) in *M. hirticaudus*.

The current finding of *Myrmecophilus hirticaudus* shows that this species is more widespread in Georgia than previously known. Considering the records from adjacent Armenia and Russia, we can assume that both *M. acervorum* and *M. hirticaudus* are more widespread in Georgia.

The finding of *M. hirticaudus* in a nest of the termite species (*Reticulitermes lucifugus*) is of great interest. The association of *M. hirticaudus* with the termite *R. lucifugus* was already described by Mařan (1959) in the description of *M. termitophilus* Mařan, 1959, which later proved to be a junior synonym of *M. hirticaudus* (Stalling and Macháčková 2014). However, nothing else is known about it, and whether *R. lucifugus* is a true host, or whether the ant crickets were there by accident, remains unclear.

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References

- Cigliano MM, Braun H, Eades DC, Otte D (2022) Orthoptera Species File. Version 5.0/5.0. <http://Orthoptera.Speciesfile.org> [Accessed on 31 Mar. 2022]
- Gorochov AV (1984) Towards the fauna of crickets (Orthoptera, Gryllidae) of the Transcaucasus. Bulletin of the Academy of Sciences of the Georgian SSR 114: 621–624. [In Russian]
- Hsu PW, Hugel S, Wetterer JK, Tseng SP, Ooi CSM, Lee CY, Yang CCS (2020) Ant crickets (Orthoptera: Myrmecophilidae) associated with the invasive yellow crazy ant *Anoplolepis gracilipes* (Hymenoptera: Formicidae): evidence for cryptic species and potential co-introduction with hosts. Myrmecological News 30: 103–129.
- Mařan J (1959) Beitrag zur Kenntnis der in Griechenland vorkommenden Arten der Gattung *Myrmecophilus* Latr Orthoptera–Gryllodea. Acta Entomologica Musei Nationalis Pragae 33: 61–67.
- Schimmer F (1909) Beitrag zu einer Monographie der Gryllodeengattung *Myrmecophila* Latr. Zeitschrift für Wissenschaftliche Zoologie 93: 409–534.
- Stalling T (2013) First records of the ant-loving cricket *Myrmecophilus acervorum* (Panzer, [1799]) from Armenia and comments on *Myrmecophilus hirticaudus* Fischer von Waldheim, 1846 (Orthoptera: Myrmecophilidae). Biological Journal of Armenia 2: 120–122.
- Stalling T, Birrer S (2013) Identification of the ant-loving crickets, *Myrmecophilus* Berthold, 1827 (Orthoptera: Myrmecophilidae), in Central Europe and the northern Mediterranean Basin. Articulata 28: 1–11.
- Stalling T, Macháčková L (2014) Synonymy of the ant-loving cricket *Myrmecophilus termitophilus* Mařan, 1959 (Orthoptera: Myrmecophilidae). Acta Entomologica Musei Nationalis Pragae 54: 451–454.
- Stalling T, Schröter A, Fritze M-A (2019) Erste Nachweise von *Myrmecophilus hirticaudus* Fischer von Waldheim, 1846 für Georgien, Südkaukasus (Orthoptera, Myrmecophilidae). Entomologische Nachrichten und Berichte 64: 57–59.
- Wetterer JK, Hugel S (2014) First North American records of the Old World Ant Cricket *Myrmecophilus americanus* (Orthoptera, Myrmecophilidae). Florida Entomologist 97: 126–129. <https://doi.org/10.1653/024.097.0117>